Claims

What is claimed is:

1. A chemical composition that inhibits corrosion in metal substrates, said chemical composition comprising:

a first complexing agent comprising an amine group; and

a second complexing agent comprising a carboxylic acid.

2. The composition of Claim 1, wherein said first complexing agent is an amine selected from the group consisting essentially of primary, secondary, tertiary and mixed amines.

3. The composition of Claim 2, wherein said primary amine is 3-methoxypropylamine.

4. The composition of Claim 2, wherein said secondary amine is morpholine.

5. The composition of Claim 2, wherein said tertiary amine is selected from the group consisting essentially of 4-ethylmorpholine and triethanolamine.

6. The composition of Claim 2, wherein said mixed amine is selected from the group consisting essentially of dimethylaminopropylamine and aminopropylmorpholine.

7. The composition of Claim 1, wherein said second complexing agent is benzoic acid.

8. The composition of Claim 1, further comprising a pH adjusting agent.

9. The composition of Claim 8, wherein said pH adjusting agent is ammonium hydroxide.

10. The composition of Claim 1, wherein said first complexing agent and said second complexing agent react to form a stable aminocarboxylate salt.

11. A method of inhibiting corrosion in a metal substrate, comprising the steps of:

creating a stable aminocarboxylate salt chemical composition, whereby a corrosion and flash rust inhibiting product is created; and

applying said inhibiting product to said substrate.

12. The method of Claim 11, further comprising the step of:

incorporating said aminocarboxylate salt chemical composition into a paint coating product prior to said step of applying said inhibiting product to said metal substrate.

13. The method as claimed in Claim 11, wherein said aminocarboxylate salt chemical composition comprises:

an amine group;

a carboxylic acid;

water; and

a pH adjusting agent.

14. The method as claimed in Claim 13, wherein said amine

is selected from the group consisting essentially of 3-methoxypropylamine, morpholine, 4-ethylmorpholine, triethanolamine, dimethylaminopropylamine and amininopropylmorpholine.

15. The method as claimed in Claim 13, wherein said carboxylic acid is benzoic acid.

16. The method as claimed in Claim 13, wherein said pH adjusting agent is ammonium hydroxide.

17. A corrosion inhibiting chemical composition comprising:

water;

an amine complexing agent;

a carboxylic acid complexing agent; and

a pH adjusting agent.

18. The corrosion inhibiting chemical composition of Claim 17, wherein said amine complexing agent is selected from the group consisting essentially of 3-methoxypropylamine, morpholine, 4-ethylmorpholine, triethanolamine, dimethylaminopropylamine and aminopropylmorpholine.

19. The corrosion inhibiting chemical composition of Claim 17, wherein said carboxylic acid complexing agent is benzoic acid.

20. The corrosion inhibiting chemical composition of Claim 17, wherein said pH adjusting agent is ammonium hydroxide.

21. The chemical composition of Claim 17, wherein said chemical composition comprises approximately 50-80% by total formula weight water, approximately 2-20% by total formula weight amine complexing agent, approximately 5-20% by total formula weight carboxylic acid complexing agent, and approximately 5-7% by total formula weight pH adjusting agent.

22. A process of producing a corrosion inhibitor comprising the steps of:

mixing together water and an amine complexing agent to create a first substance;

mixing together said first substance with a carboxylic acid complexing agent to create a second substance; and

mixing together said second substance with a pH adjusting agent to create said corrosion inhibitor.

23. The process of Claim 22, wherein said amine complexing agent is selected from the group consisting essentially of 3-methoxypropylamine, morpholine, 4-ethylmorpholine, triethanolamine, dimethylaminopropylamine and aminopropylmorpholine.

24. The process of Claim 22, wherein said carboxylic acid complexing agent is benzoic acid.

25. The process of Claim 22, wherein said pH adjusting agent is ammonium hydroxide.

26. The process of Claim 22, wherein said chemical composition comprises approximately 50-80% by total formula weight water, approximately 2-20% by total formula weight amine complexing agent, approximately 5-20% by total formula weight carboxylic acid complexing agent, and approximately 5-7% by total formula weight pH adjusting agent.

27. A process of making a non-toxic corrosion inhibitor comprising the steps of providing approximately 50-80% by total formula weight of water and adding approximately 2-20% by total formula weight of an amine complexing agent, approximately 5-20% by total formula weight of a carboxylic acid complexing agent, and approximately 5-7% by total formula weight of a pH adjusting agent.

28. The process of Claim 27, further comprising the step of mixing said approximately 50-80% by total formula weight of water, 2-20% by total formula weight of said amine complexing agent, 5-20% by total formula weight of said carboxylic acid complexing agent, and 5-7% by total formula weight of said pH adjusting agent to create an aqueous mixture.

29. The process of Claim 27, wherein said amine complexing agent is selected from the group consisting essentially of 3-methoxypropylamine, morpholine, 4-ethylmorpholine, triethanolamine, dimethylaminopropylamine and aminopropylmorpholine.

30. The process of Claim 27, wherein said carboxylic acid complexing agent is benzoic acid.

31. The process of Claim 27, further comprising the steps of:

transferring said aqueous mixture to a holding tank; and

allowing said mixture to cool to room temperature.

32. A paint mixture, including the chemical composition in Claim 1, that, when applied to a metal substrate, inhibits corrosion of the metal.

33. A paint mixture, including the chemical composition in Claim 1, that, when applied to a metal substrate, inhibits flash rusting of the metal.

34. The paint mixture of Claim 32, wherein said paint mixture contains a high gloss resin and wherein the chemical composition does not diminish the gloss.

35. The paint mixture of Claim 32, wherein said paint mixture contains a semi gloss resin and wherein the chemical composition does not diminish the gloss.

36. A process of producing a corrosion inhibitor comprising the steps of:

mixing together water and an amine complexing agent to create a first substance;

mixing together said first substance with a carboxylic acid complexing agent to create said corrosion inhibitor.

37. A process of making a non-toxic corrosion inhibitor comprising the steps of providing approximately 50-80% by total formula weight of water and adding approximately 2-20% by total formula weight of an amine complexing agent and approximately 5-20% by total formula weight of a carboxylic acid complexing agent.